

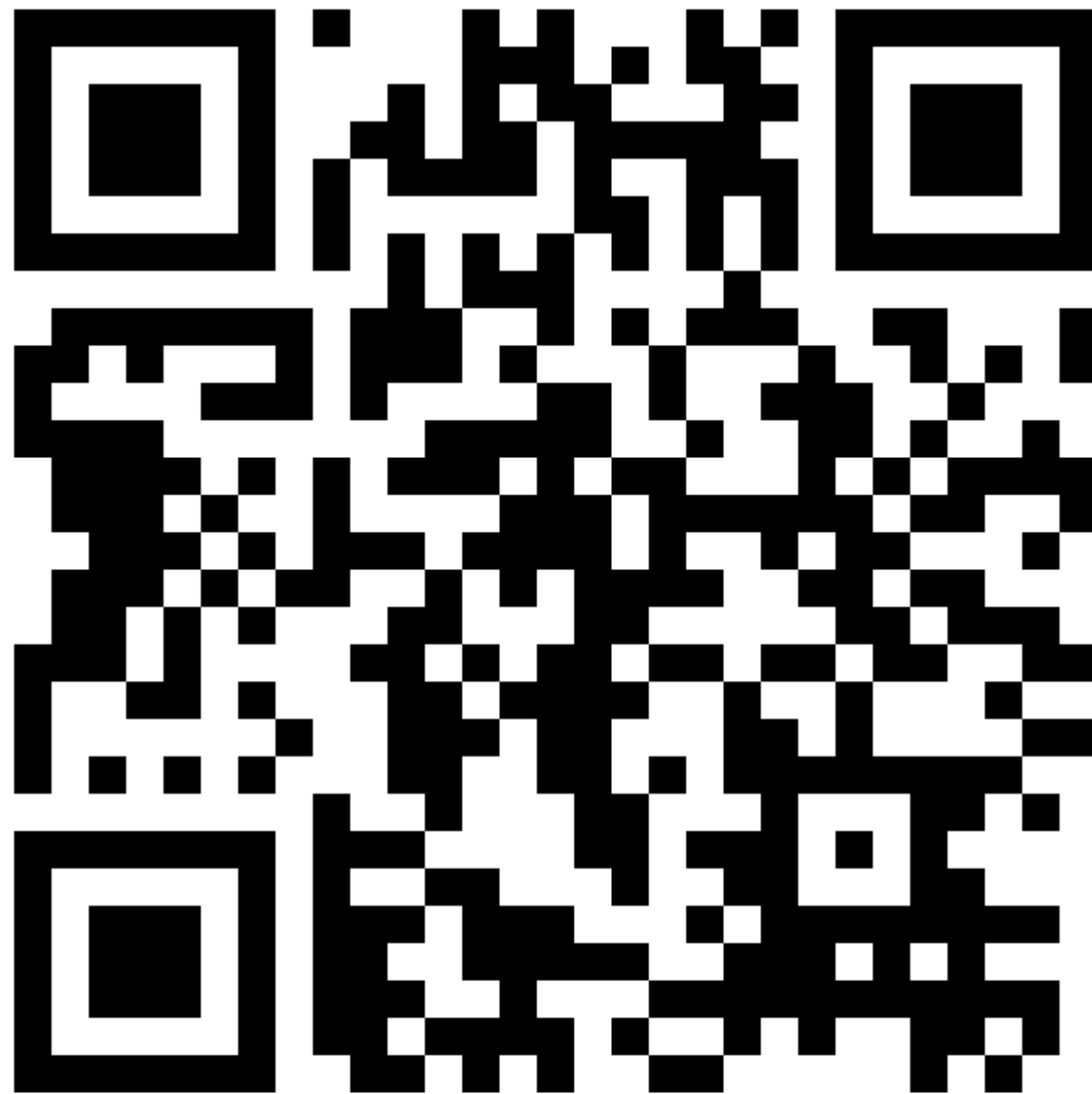


# Accessibility for All

Rory Preddy  
Microsoft Developer Advocate



@rorypreddy

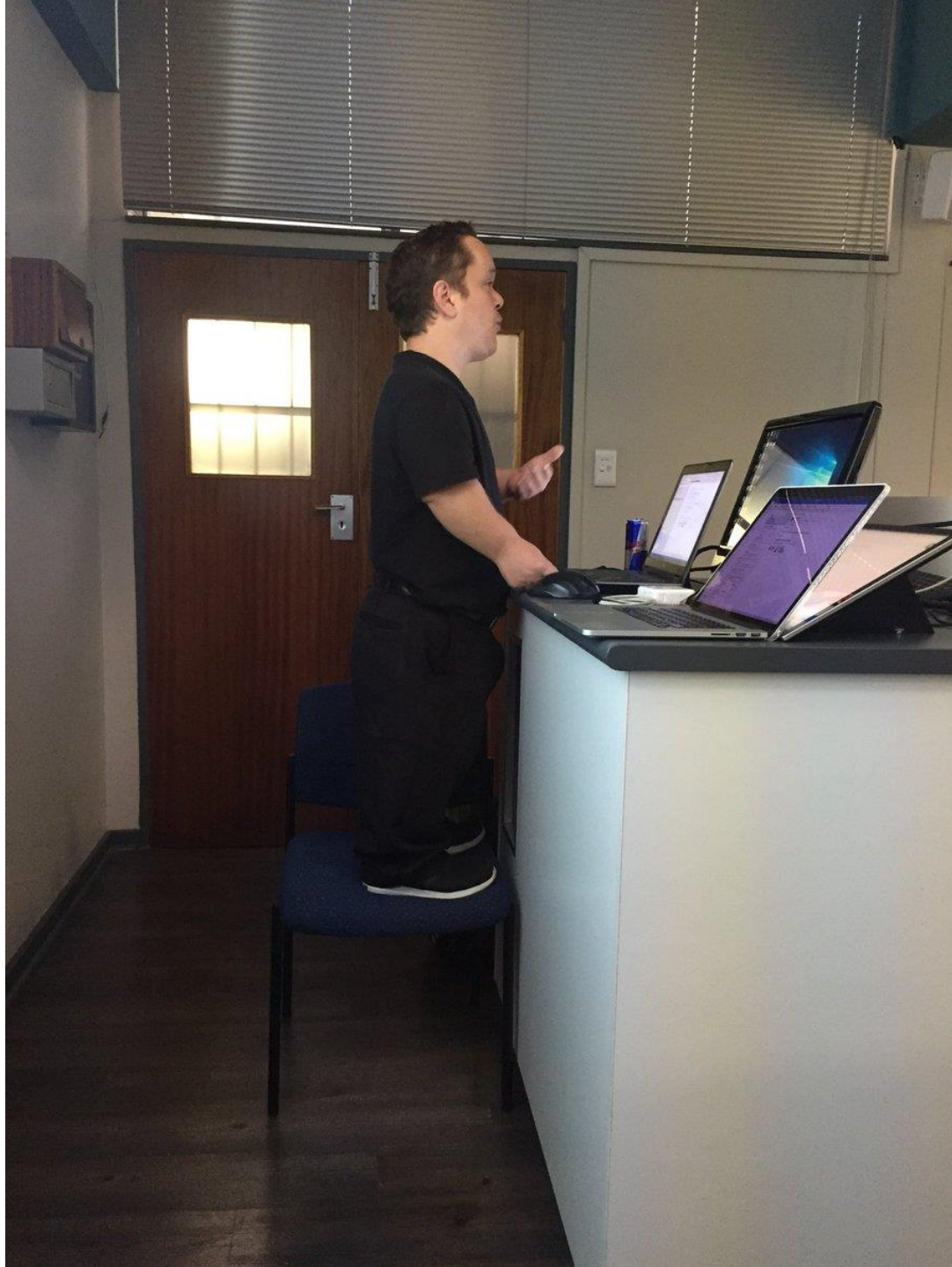


<https://aka.ms/for-all>

## My Car Pedals



Bolt on





I felt left out





# The Agile Manifesto

## Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.  
Through this work we have come to value:

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

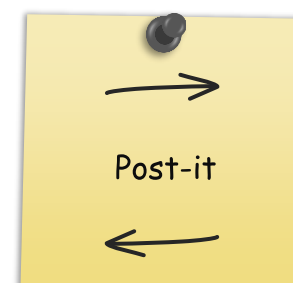
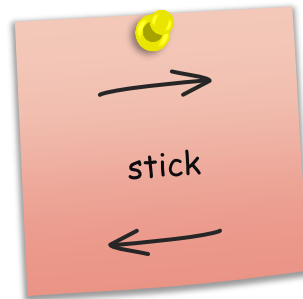
Open office







# HOW TO CLEAN A WHITEBOARD

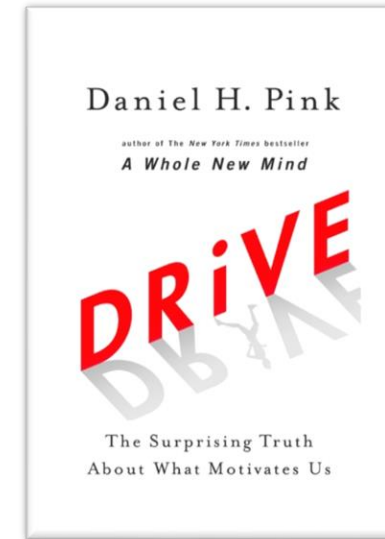
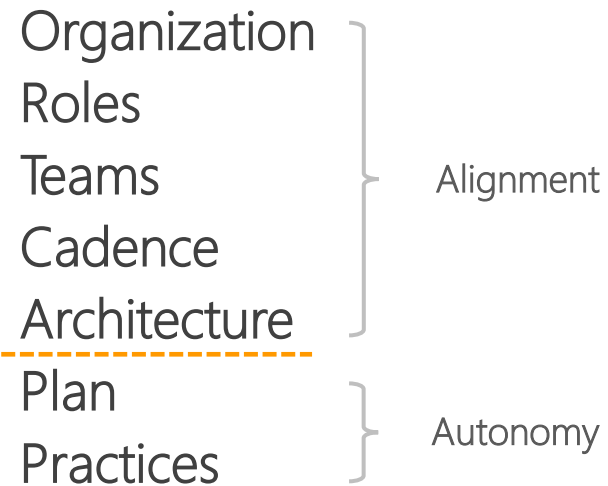


# The Hydra





# Aligned Autonomy



*"Let's try to give our teams three things ...  
Autonomy, Mastery, Purpose."*

Ikigai





Empathy





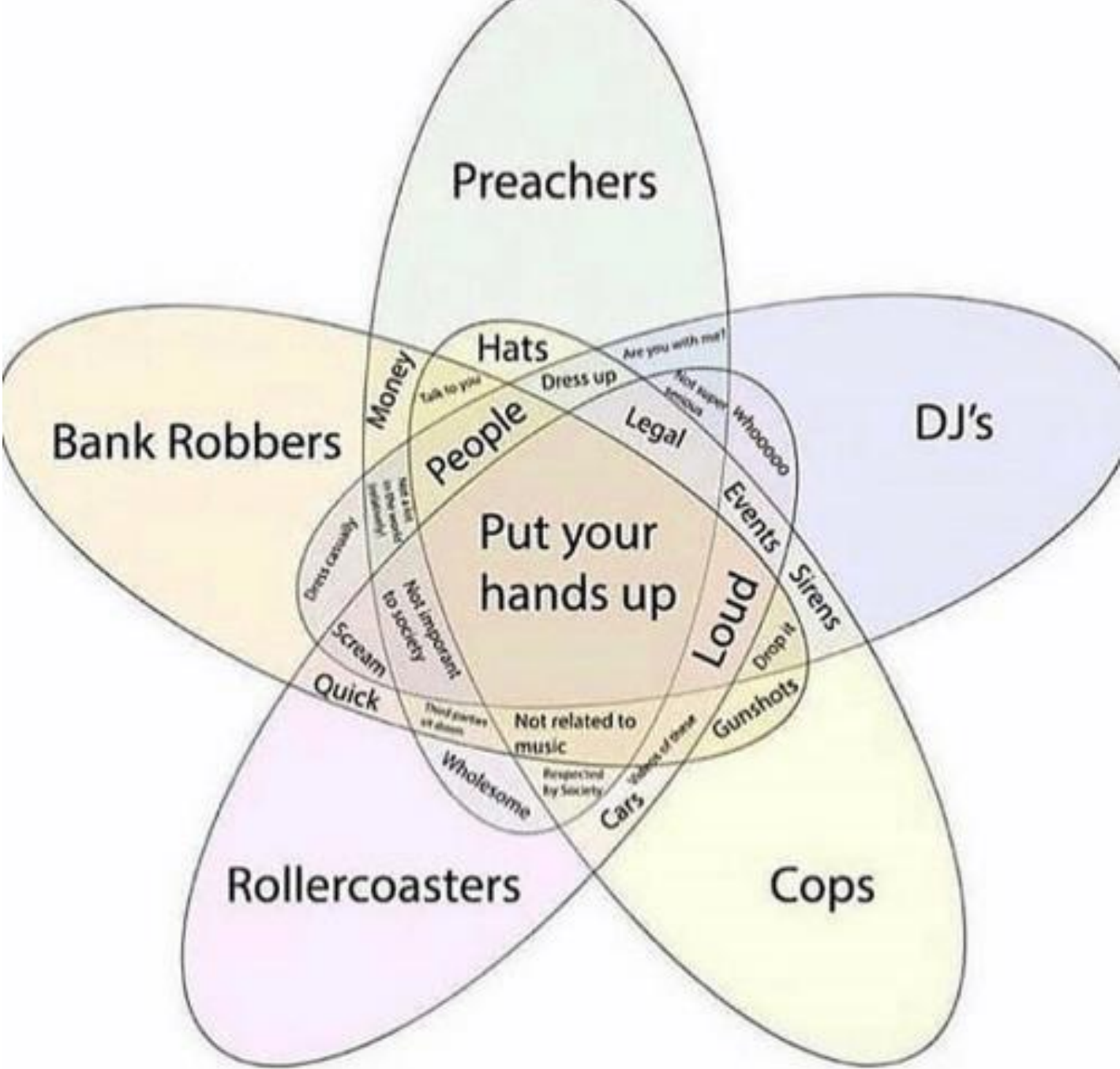
**ME**

**NEW SIDE PROJECT**

**ALL MY  
OTHER UNFINISHED  
PROJECTS**



Put your hands up



# Empathy Bubble





Fail



# The plan

- Understanding Your Organization's Unique Accessibility Motivators
- Set Achievable Interim Milestones
- Implement Tools
- Measure, Improve and Automate

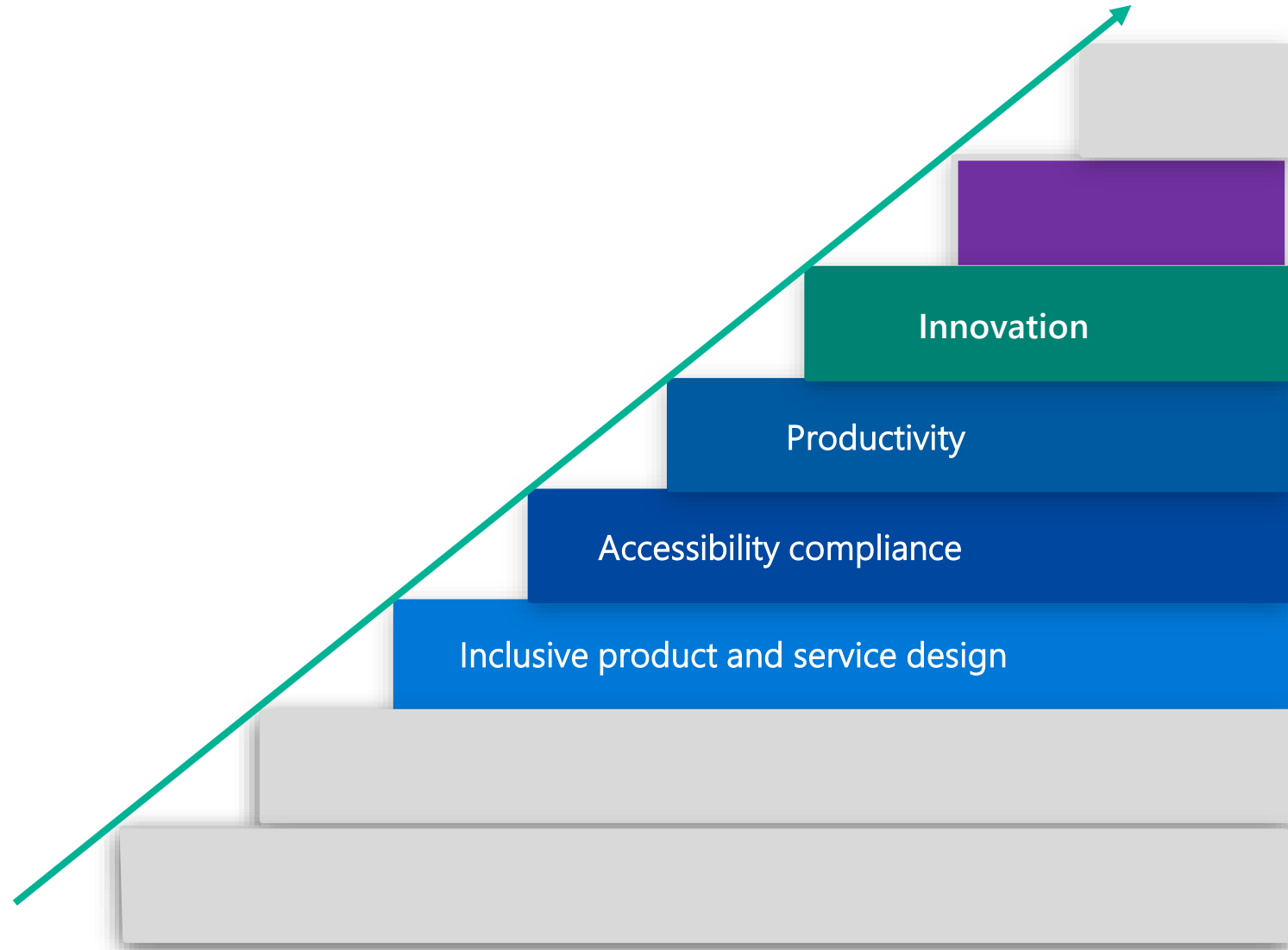
# Accessibility





## Accessibility is...

...the design of products, services, and environments so that everyone, including people with disabilities, can fully experience them.



Disability



Personal  
health  
condition

**Disability**



Mismatched  
human  
interactions

# WCAG – Compliance levels

**Level A**—deals with the most basic web accessibility features

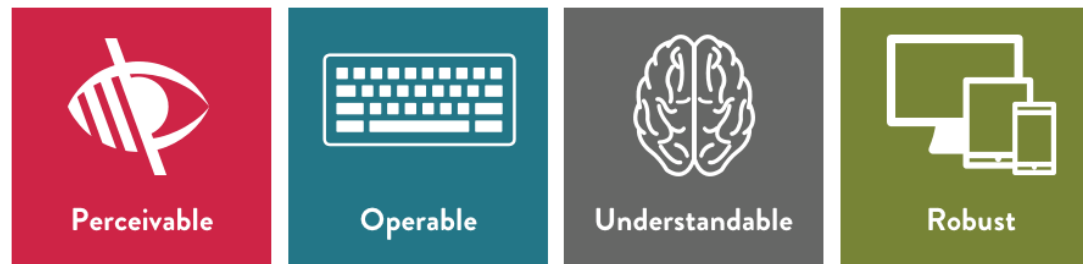
**Level AA**—signifies the biggest and most common barriers for disabled users

**Level AAA**—addresses the highest (and most complex) level of web accessibility



# WCAG - principles

- Perceivable – *can you see it*
- Operable – *can you use it*
- Understandable – *can you understand it*
- Robust – *it won't break future technologies*



# Motivators



# Legislation



US 21st Century Integrated Digital Experience Act



EU parliament directive on digital accessibility





# Quality of life

For most of human history, we've put our innovative capacity into improving the quantity of life. Because we're living longer, our focus is starting to shift toward improving our quality of life

--Bill Gates









## Claudia



54 years old social worker

Sight impaired (partially sighted)

Uses a screen magnifier and changes colours to increase contrast

---

### Chromebook help

If you're lost, go back to the list left to re-orientate yourself

---

## Ashleigh



24 years old arts graduate and administrative assistant

Severely sight impaired (blind)

Uses a screen reader

---

### Chromebook help

Screen reader quick guide:  
Use Tab to move from links and form elements to the next. Shift + Tab to go back. Search + Arrow Right/Left to read text in between those.

---

## Ron



82 years old, retired

Multiple conditions: arthritis, losing his hearing, cataracts, hip replacements

Doesn't use any assistive technology

---

### Chromebook help

As Ron is not very technical, don't use anything which might help. For example, don't zoom into the page and don't use the keyboard to navigate.

---





<https://alphagov.github.io/accessibility-personas/>



# Inclusive design steps

1. Recognise exclusion
2. Solve for one, extend to many
3. Learn from diversity

# Persona Spectrum



One arm



Arm injury



New parent



Permanent 26K



Temporary 13M

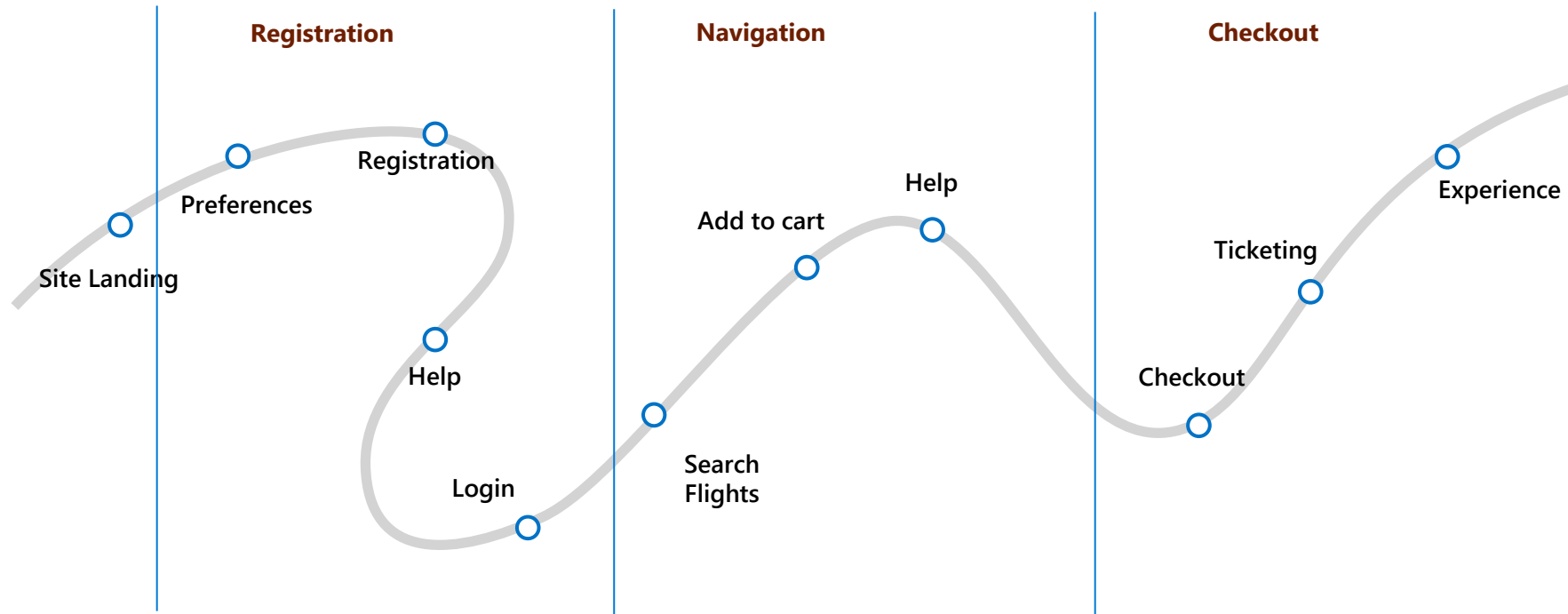


Situational 8M

---

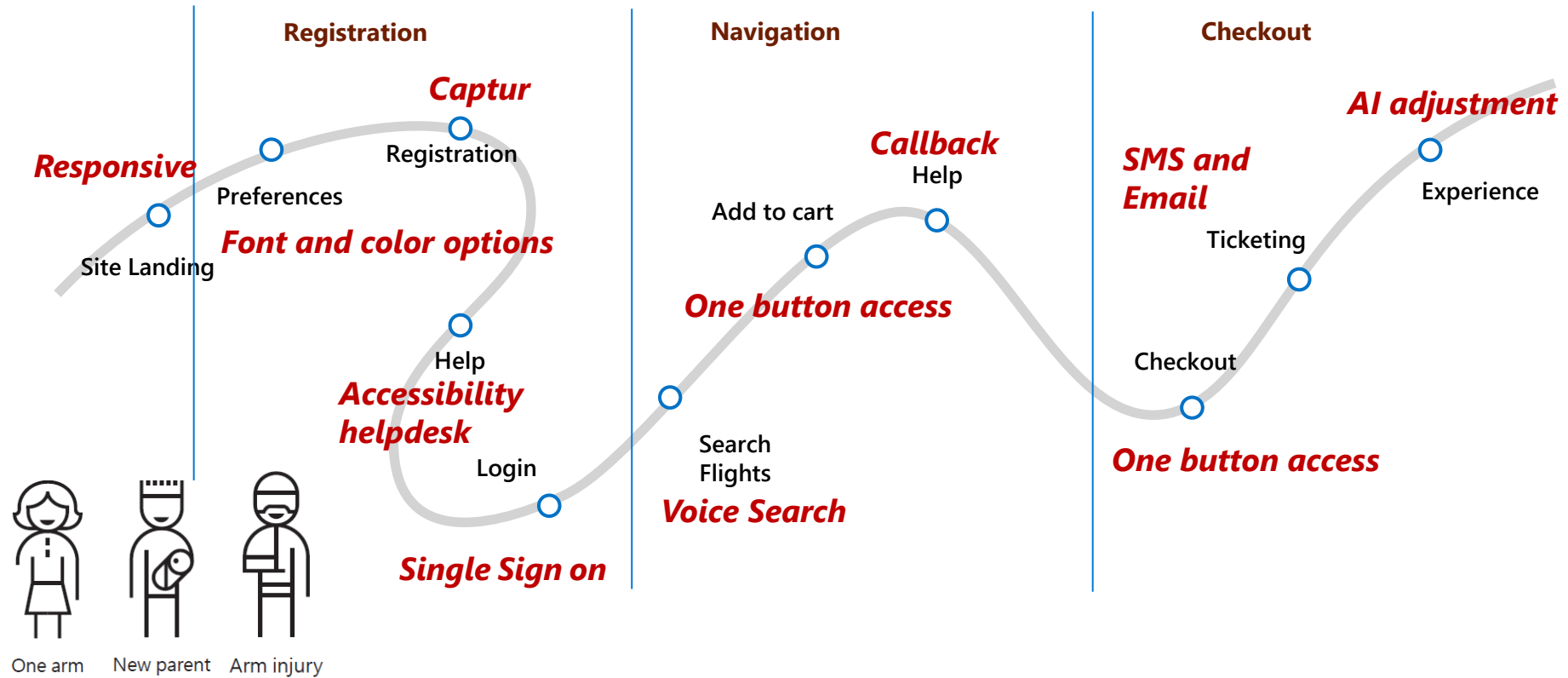
Total: 21M+

# Ticketing scenario





# Apply Personas



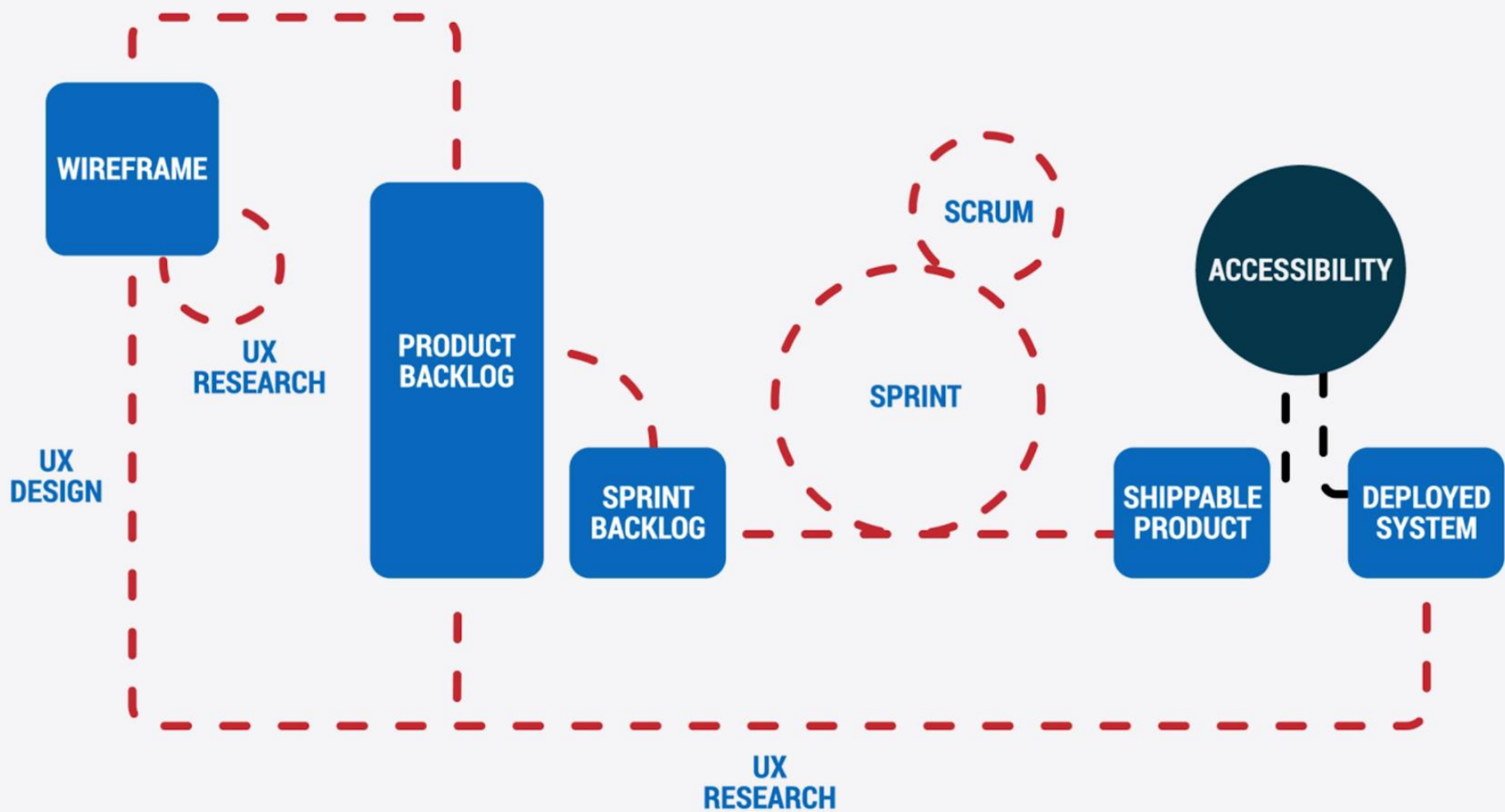
# Empathy Transformation Practices

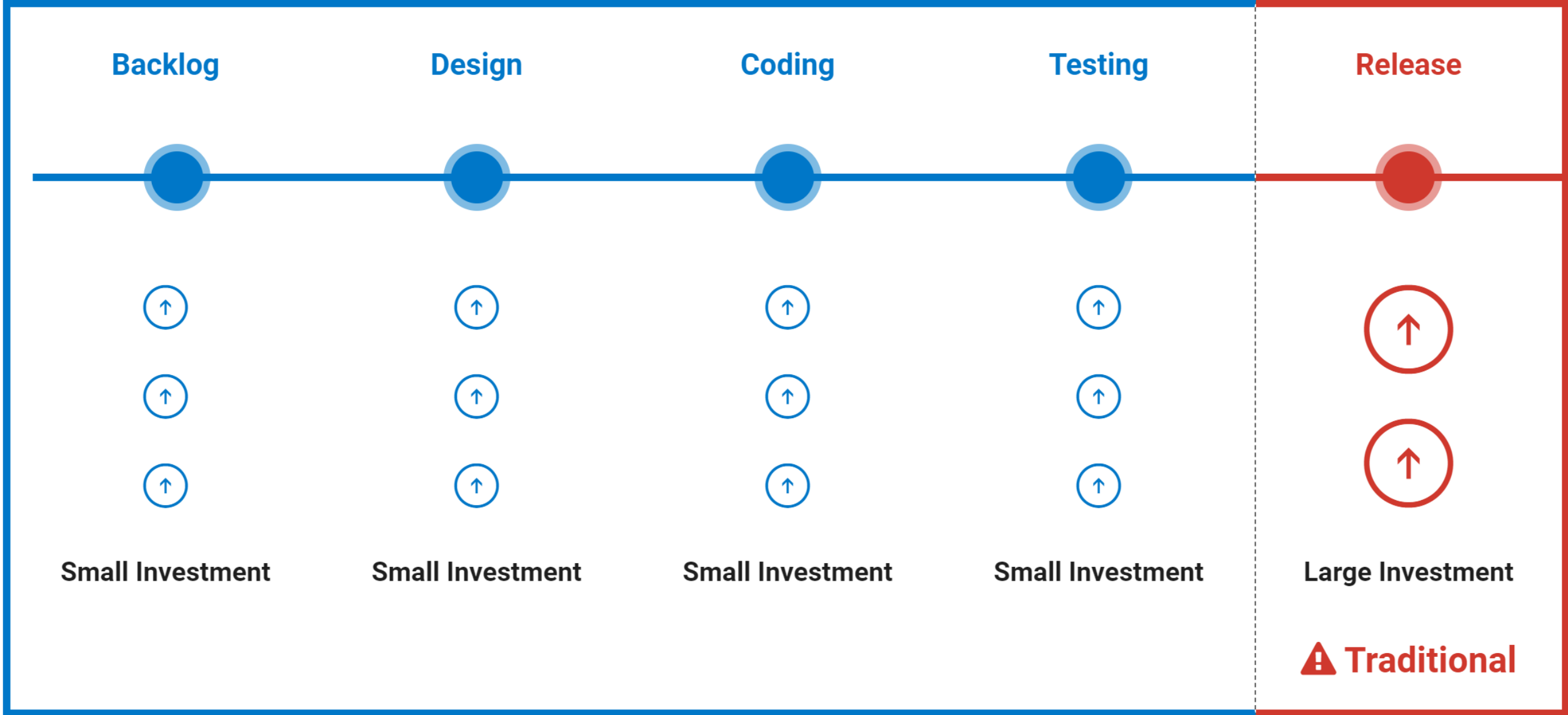
- Create a central team to manage the transformation
- Execute an empathy program to drive motivation.
- Make high-quality learning resources available and integrate these into onboarding.
- Form a team of accessibility coaches to coach agile teams.
- Create an accessibility dashboard to measure progress.

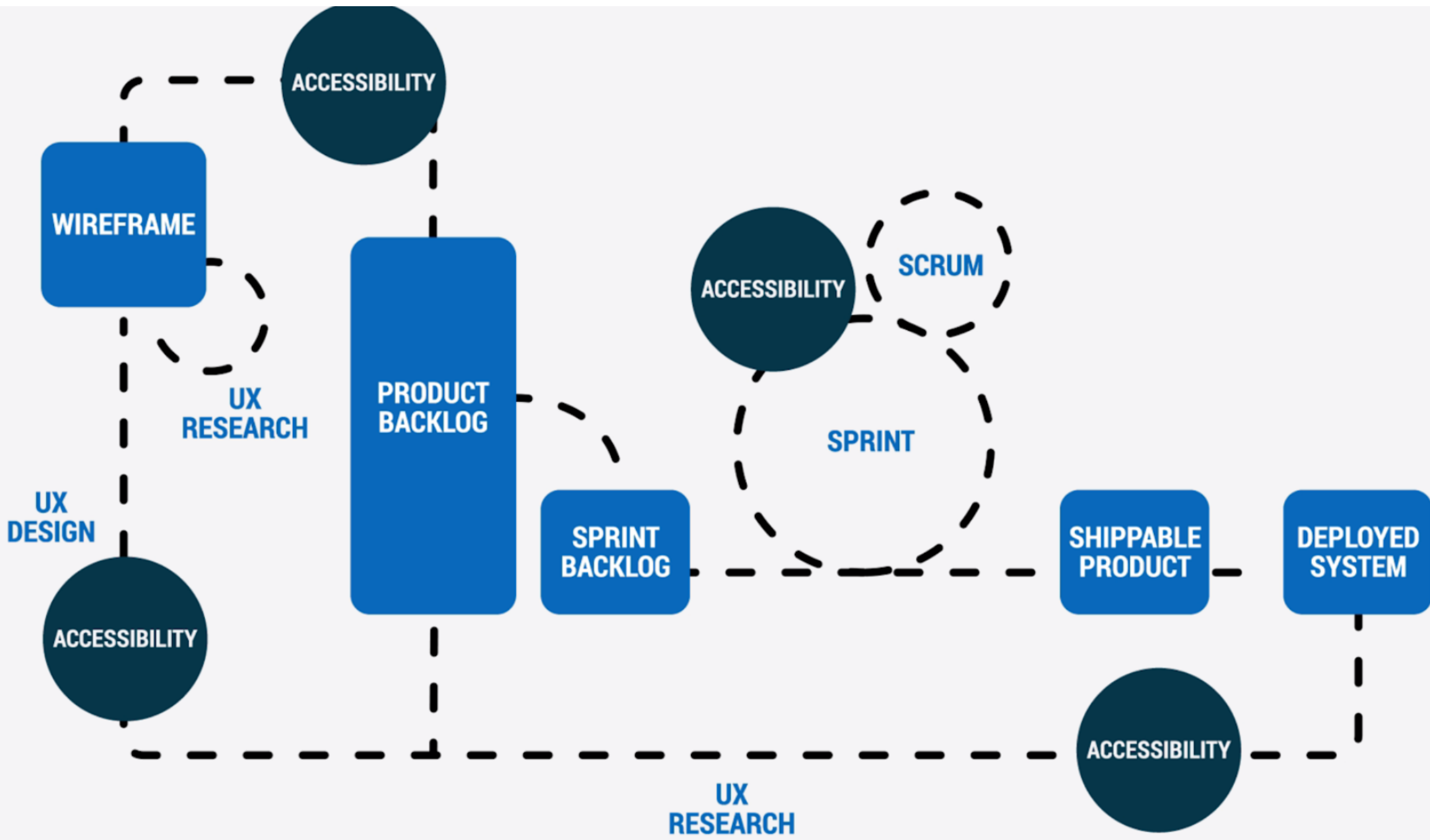
# Milestones





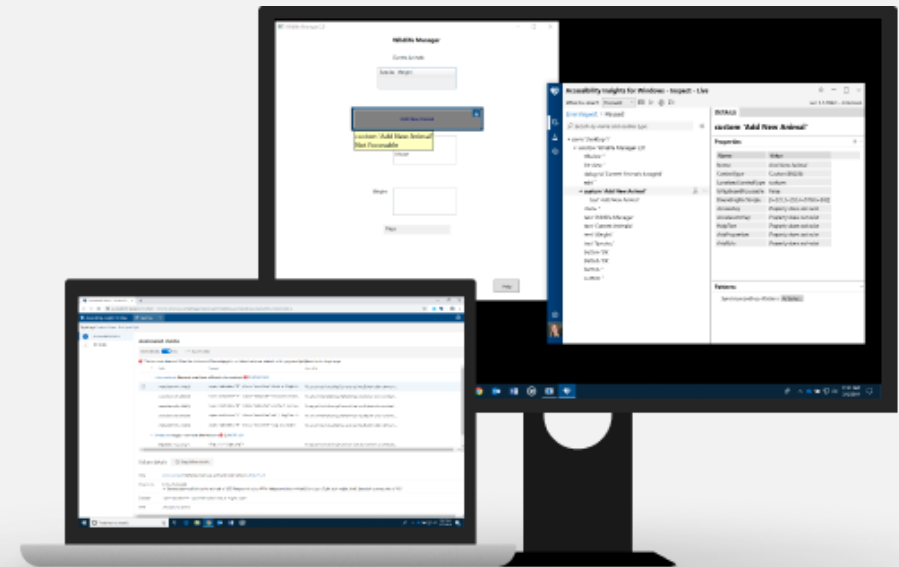


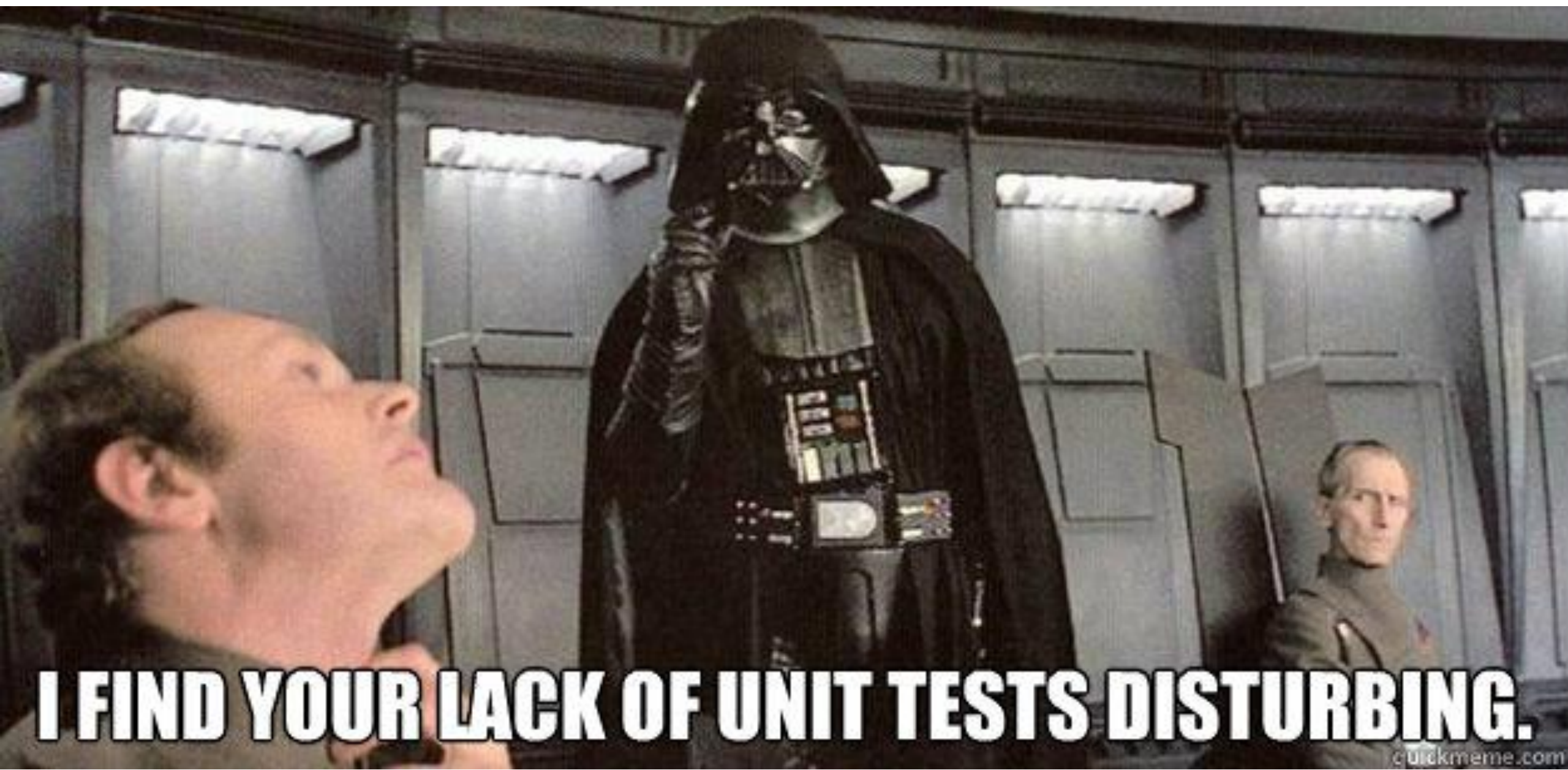






# Tools

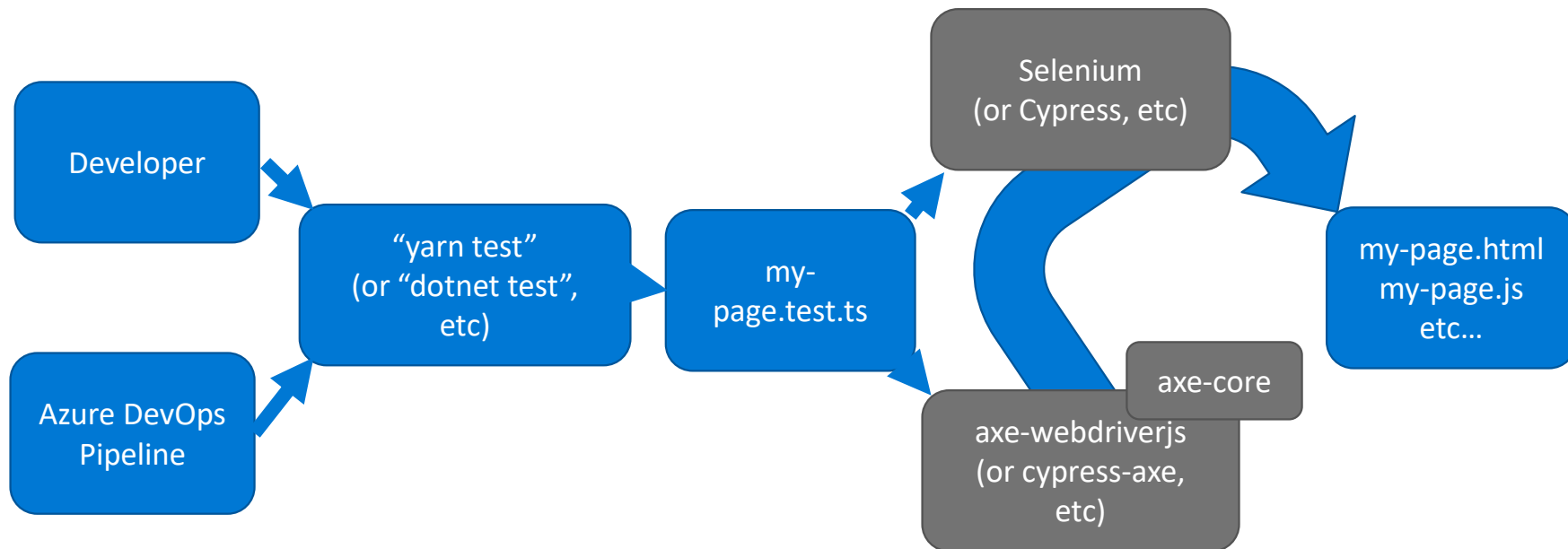




**I FIND YOUR LACK OF UNIT TESTS DISTURBING.**

# Scanning with axe-core

- axe-core is a javascript library (npm package)
- scans a rendered DOM
- reports back results as json
- Same engine that Accessibility Insights uses



A

axe-pipelines-samples

Overview

Pipelines

Pipelines

Releases

Jobs in run #202...

[failing example] csharp-selenium-webdriver-sample

Jobs

▼

✖

Job win-chrom

1m 30s

✓

Initialize job

3s

✓

Checkout

4s

✓

install .NET Core

13s

✓

dotnet restore

34s

✖

dotnet test

33s

⌚

Component Det

<1s

✓

Post-job: Check

<1s

✓

Finalize Job

<1s

✖

dotnet test

🔍

View raw log

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

Results File: d:\a\\_temp\VssAdministrator\_fv-az130\_2020-01-15\_21\_50\_38.trx

Test Run Failed.

Total tests: 4

Passed: 3

Failed: 1

Total time: 22.5409 Seconds

##[error]Error: The process 'C:\hostedtoolcache\windows\dotnet\dotnet.exe' failed with exit code 1

Info: Azure Pipelines hosted agents have been updated to contain .Net Core 3.x SDK/Runtime along wi

Some commonly encountered changes are:

If you're using `Publish` command with -o or --Output argument, you will see that the output folder

##[error]Dotnet command failed with non-zero exit code on the following projects : d:\a\1\s\csharp-

Async Command Start: Publish test results

Publishing test results to test run '16690'.

TestResults To Publish 4, Test run id:16690

Test results publishing 4, remaining: 0. Test run id: 16690

Published Test Run : https://dev.azure.com/accessibility-insights/axe-pipelines-samples/\_TestManage

Async Command End: Publish test results

Finishing: dotnet test

<https://github.com/microsoft/axe-pipelines-samples>



- A **axe-pipelines-samples** +
- Overview
- Pipelines
- Builds
- Releases
- Library
- Task groups
- Deployment groups
- Compliance

✓ **#20190802.1: Bump lodash in /typescript-selenium-webdriver-sample (#49)**

Triggered aug 1 at 6:00 pm for dependabot[bot] microsoft/axe-pipelines-samples master 1ffaaba

Logs Summary **Tests** Scans

Summary

1 Run(s) Completed ( 1 Passed, 0 Failed )

4

Total tests

+4

4

Passed

0

Failed

0

Others

100%

Pass percentage

↑ 100%

14s 240ms

Run duration ⓘ

↑ +14s 240ms

Test run Column Options

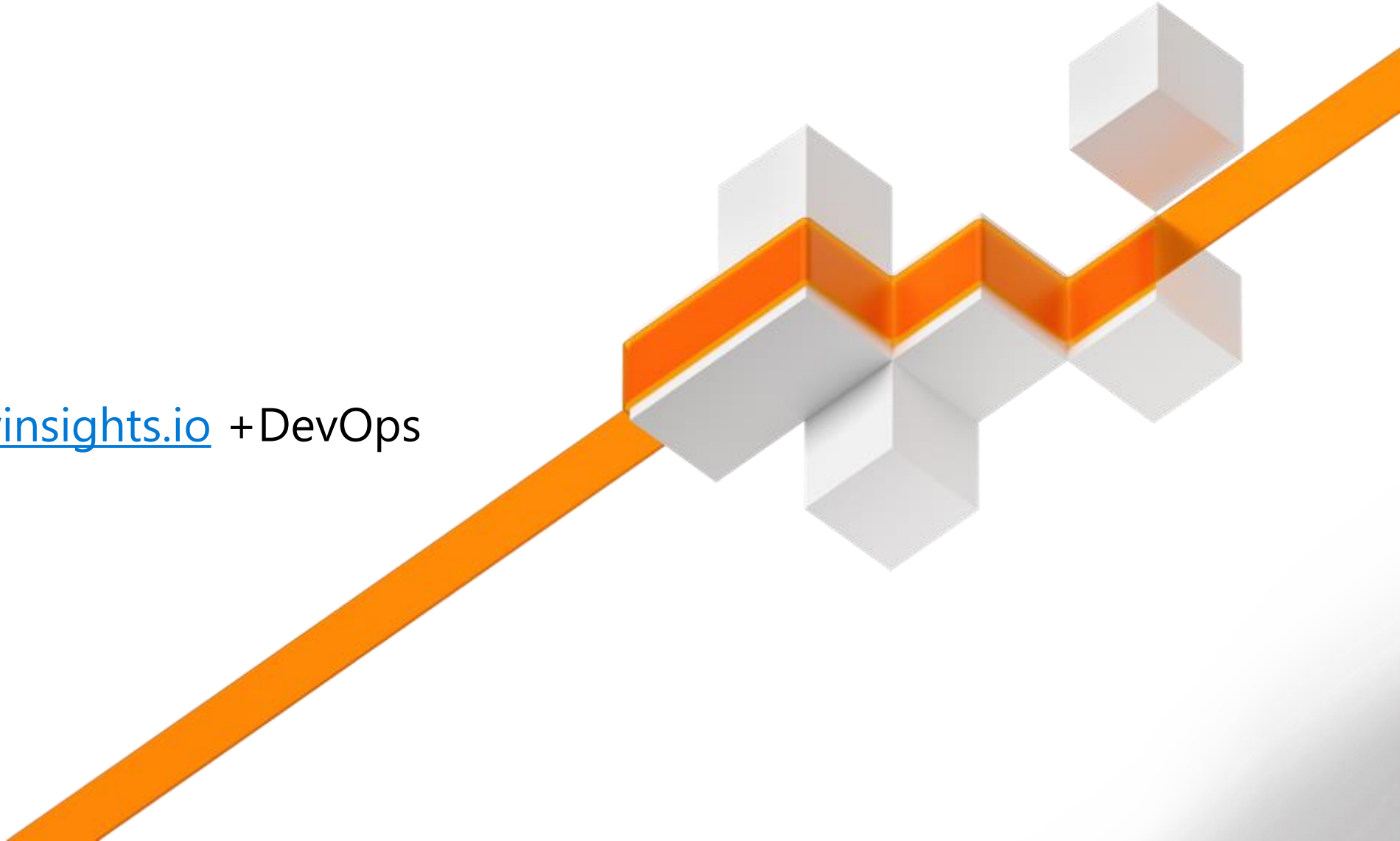
Filter by test or run name

Tags Test file Owner Outcome

Test	Duration	Failing since	Failing build	Tags
✓ typescript-selenium-webdriver-sample (4/4)	0:00:14.240			
✓ index.html has no accessibility violations in the h1 element	0:00:08.657			
✓ index.html has no accessibility violations outside of the known example violations	0:00:00.290			
✓ index.html has only those accessibility violations present in snapshot	0:00:00.290			
✓ index.html has only accessibility issues stored in our snapshot corresponding to only wcag2a and w	0:00:00.276			

# Demo

<https://accessibilityinsights.io> + DevOps



# axe-matchers

BeAccessible
exclude known inaccessible subtree
check known inaccessible page
check known accessible subtree

cucumber
mixes the DSL into World (PENDING: Not yet implemented)

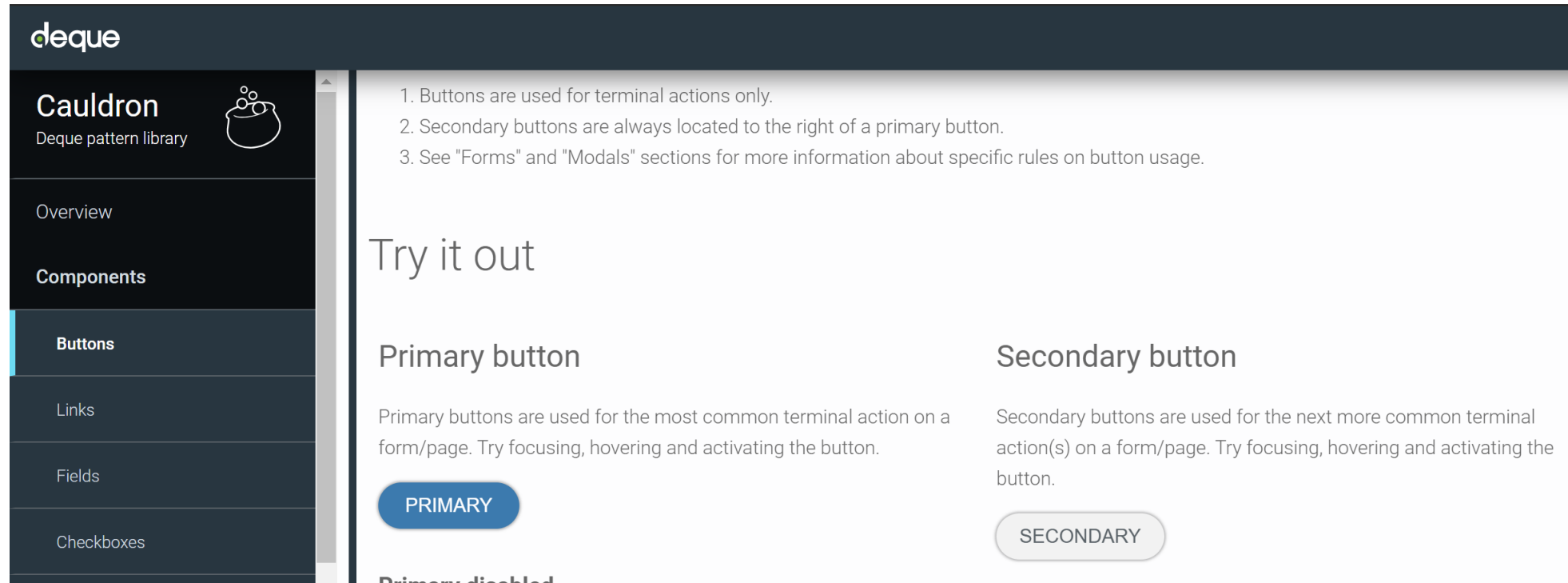
Axe::DSL
can be mixed in (PENDING: Not yet implemented)
can be used directly (PENDING: Not yet implemented)

using minimal Selenium-Webdriver setup (using firefox)

```
2
3 Background:
4   Given I am a visitor
5     When I visit "http://abcdcomputech.dequecloud.com/"
6
7   # The steps for the following scenarios are provided by the axe-matchers gem
8
9   Scenario: Test whole page (known to be inaccessible, should fail)
10    Then the page should not be accessible
11
12   Scenario: Test working sub-tree (should pass)
13    Then the page should be accessible within "#intro"
14
15   Scenario: Test broken sub-tree (known to be inaccessible)
16    Then the page should not be accessible within "#topbar"
17
```

<https://github.com/dequelabs/axe-matchers>

# Pattern libraries



<https://pattern-library.dequelabs.com/>



# Team Practices

- Include Users with Disabilities in Research
- Communicate Design Intent
- Leverage a pattern library
- Leverage automated testing library
- Automate accessibility testing
- Measure progress
- Accessibility in retrospectives



# Conclusion

1. Empathy
2. Shift Left
3. Automate



<https://aka.ms/for-all>



@rorypreddy